CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 93-085
NPDES PERMIT NO. CA0037834
REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF PALO ALTO
PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. The City of Palo Alto (hereinafter the discharger) submitted a National Pollutant Discharge Elimination System (NPDES) permit application dated July 5, 1991, for reissuance and amendment of waste discharge requirements under NPDES Permit No. CA0037834.

2. The discharger is currently subject to NPDES Permit CA0037834 (Order No. 88-175, adopted December 21, 1988, and modified as follows: Order 90-034, adopted February 21, 1990; Order 90-69 adopted May 16, 1990; and, Order 91-068, adopted April 17, 1991). Order 88-175 was appealed to the State Water Resources Control Board after its adoption, and the State Board ruled on the appeals in Order No. WQ 90-5, issued October 5, 1990.

3. The discharger currently discharges an average dry weather flow of approximately 19 million gallons per day (mgd) from its advanced waste treatment facility at 2501 Embarcadero Way, Palo Alto. The discharger supplies reclaimed water (unrestricted use) at its facility. Treatment facilities consist of screening, primary treatment, fixed-film roughing filters for CBOD reduction, activated sludge for nitrification, secondary clarification, dual media filtration, chlorination, and dechlorination. Sludge is gravity thickened, dewatered using belt presses, and incinerated in multiple hearth furnaces. A plant expansion was completed in 1988, providing average dry weather flow capacity of 39 mgd. The facility treats wastewater from Palo Alto, Mountain View, Los Altos, Los Altos Hills, Stanford University, and the East Palo Alto Sanitary District.

   Treated wastewater effluent from the treatment plant flows into a man-made channel (37 deg. 27 min. 11 sec. latitude - 122 deg. 06 min. 36 sec longitude) to South San Francisco Bay, waters of the United States.

4. The Board amended its Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on September 16, 1992, and the State Water Resources Control Board (State Board) approved it on April 27, 1993. The Regional Board amended the Basin Plan on October 21, 1992 to adopt a site-specific objective of 4.9 $\mu g/\ell$ for copper for San Francisco Bay and the shallow water marine effluent limit. The Regional Board amended the Basin Plan on June 16, 1993 to adopt a wasteload allocation for copper (Resolution 93-61). The provisions of this permit are consistent with the Basin Plan amendments adopted by the Regional Board. The State Board has not approved the Basin Plan amendments of October 1992 and June 1993 as of the date of this permit.

   Certain portions of the Basin Plan not yet approved by the State Board are included in this permit. Such limitations, specifications, and provisions are based on best professional judgment and staff evaluation of the presentations at the October 1992 (Item 6) and June 1993 (Item 6) Board meetings. The records from these hearings are incorporated by reference in this permit hearing. Specifically, the site-specific objective for copper is included based on the Regional Board study that employed the "water effect ratio" approach developed by the U.S. Environmental Protection Agency (EPA). This approach provides a measure of the binding capacity of natural waters (dependent on particulate matter) relative to the binding capacity of reference (filtered oceanic water) waters. The mass loading limit for copper in this permit is from the region-wide wasteload allocation for copper, developed to implement the site-specific concentration limit by requiring reductions in copper mass discharged from riverine, non-point discharges, and municipal and industrial dischargers throughout the San Francisco Bay-Delta Estuary. An advantage of the site-specific objective is that it is protective of the most sensitive use of San Francisco Bay waters with respect to copper: habitat for aquatic organisms.

5. The beneficial uses of San Francisco Bay, South Bay (south of the Dumbarton Bridge) and contiguous water bodies are:

   Water contact recreation
   Non-contact water recreation
   Wildlife habitat
   Preservation of rare and endangered species
   Estuarine habitat
   Fish migration
   Fish spawning (potential use)
   Industrial service supply
   Shellfish harvesting
   Navigation
   Commercial and sport fishing

6. The existing discharge location is contrary to Basin Plan policy. The Basin Plan prohibits discharges receiving less than 10:1 minimum initial dilution via a deep water diffuser, discharges to dead-end sloughs, and discharges south of the Dumbarton Bridge. The existing discharge location is also contrary to the State Water Resources Control Board Bays and Estuaries policy, which prohibits discharges south of the Dumbarton Bridge.

7. Exceptions to the three Basin Plan prohibitions may be considered where the discharger can show (1) a net environmental benefit as a result of the discharge, (2) that the project is part of a reclamation project, or (3), that the discharge will provide equivalent protection.

8. The 1986 Basin Plan did not include water quality objectives for San Francisco Bay south of the Dumbarton Bridge. The Basin Plan found that the South Bay had a unique hydrogeologic environment, and that site-specific water quality objectives for metals were appropriate for the water body. Order 88-175 contained requirements for studies to assess impacts from metals on the water body, to investigate controls on metals levels discharged in effluent, and to develop water quality objectives based on cost/impact. These studies have all been received by the Regional Board. The discharger was allowed to propose water quality objectives based on toxicity testing. A conditional finding of net environmental benefit for the discharge was made in 1989 at the time waste discharge requirements were adopted. An unconditional finding of net environmental benefit could not be made because of unresolved concerns regarding the impacts of heavy metals on the South Bay.

9. State Board Order WQ 90-5 found that a net environmental benefit exception could not be made. Order WQ 90-5 found that water quality objectives were needed for the South Bay, and directed the Board to adopt objectives by March, 1991, and to amend the permit to include water quality based metals limits by April, 1991. In addition, the Board was required to modify the mass loading limits for metals in the permit. On April 17, 1991, Order 91-068 was adopted by the Board, which included revised concentration and mass loading limits for metals. The discharger has submitted information on the South Bay waters and sediments that propose modest use of dilution in calculating effluent limits. No dilution allowance can be made for mercury at this time because of concerns regarding bioaccumulation and biomagnification effects.

   A decision regarding the dilution calculation submitted by the discharger will be made by the Board in the future following a demonstration that an aggressive pre-treatment and source control program is in place and that the other Basin Plan conditions for an exception to the zero dilution requirement have been met. The concentration limits contained in this permit may be revised upwards at that time in conformance with the Basin Plan.

Order WQ 90-5 found that a finding of equivalent protection could be made if water quality based concentration limits for metals and revised mass loading limits for metals were placed in the permit. Based on this requirement Palo Alto qualifies for an exception based on equivalent protection.

10. The metals limits in this permit are in some cases more stringent than previous limits. The discharger is conducting a source control program aimed at compliance with metals limits. Source control, including waste minimization, is a more desirable pollutant reduction technique than structural modification at the discharger's plant. Source control tasks are contained in the Cease and Desist Order that accompanies this Order.

11. The discharger completed the chronic toxicity testing requirements of the effluent characterization program. The results of that work show chronic toxicity associated with the effluent. The discharger is currently implementing a Toxicity Reduction Evaluation, including source control and waste minimization, aimed at controlling metals concentrations in effluent from the plant. The discharger has conducted a Toxicity Identification Evaluation to determine specific causes of the chronic toxicity, which include zinc and hardness.

12. The discharger has constructed a freshwater marsh enhancement project located on the ITT site (in the Palo Alto Baylands), near the treatment plant. Funding for the project was acquired from the California Coastal Conservancy. The project diverts up to 1 mgd of final effluent to create a 15 acre freshwater marsh that drains into Matadero Creek. The project also includes an inlet on the south arm of the Palo Alto Harbor to permit salt water inflow into a series of existing sloughs and development of salt marsh habitat on the project site.

13. The marsh will be operated to enhance beneficial uses of reclaimed water, and as such qualifies for Board consideration of an exception to the discharge prohibitions stated in Finding 6 above. The diversion of 1 mgd of treatment plant effluent to an alternate discharge point does not allow an increase in the 39 mgd capacity of the plant.

14. The Board adopted Resolution 77-1 specifically establishing its Policy regarding the use of wastewater to create, restore, maintain, and enhance marsh lands. The discharger submitted a Marsh Enhancement Plan that outlines operations of the marsh project, future enhancement of the marsh, and a program for protection of rare and endangered species. The discharger measured metals in the sediment of the marsh before operations began, and periodically thereafter in waters and sediments. As vegetation and animals in the marsh ecosystem increase, additional studies to monitor the health of the marsh will be considered.

15. Department of Health Services guidelines require that the discharge to the marsh should not exceed a median coliform limit of 23 MPN/100 ml to protect public health. The discharge currently meets that requirement.

16. The discharger is hereby notified that the Board will consider amendment of the ITT Marsh requirements as necessary to protect other beneficial uses (e.g., aquatic habitat). The consideration of amendments will depend on demonstrated effects of the marsh operations on other beneficial uses of the waters of the state.

17. The discharger has an approved EPA Local Pretreatment Program for source control and application of pretreatment standards.

18. Federal Regulations for storm water discharges were promulgated by EPA on November 19, 1990. The regulations [40 CFR 122, 123 and 124] require specific categories of industrial activities including Publicly Owned Treatment Works (POTWs) which discharge storm water associated with industrial activity (industrial storm water) to obtain a NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.

19. The storm water flows from the wastewater treatment facility process areas are directed to the wastewater treatment plant headworks and are treated along with the wastewater discharged to the treatment plant. These storm water flows constitute all industrial storm water at this facility and consequently this permit regulates all industrial storm water discharge at this facility.

20. In February 1993, EPA issued national standards regulating the use or disposal of sewage sludge. These standards were promulgated in 40 CFR Part 503, and in conjunction with the permitting requirements established in 40 CFR Parts 122, 123, and 501, make up the regulatory framework of the National Sewage Sludge Program. Part 503 is a self-implementing regulation; it is directly enforceable even in the absence of a permit. Because the discharger fires sewage sludge in an incinerator on the plant premises, the discharger must comply with the general requirements and pollutant limits specified in Subpart E of the Part 503 regulations. As of the reissuance of this permit, the discharger has submitted a proposal to the permitting authority, EPA, describing how and when the discharger will collect the necessary data to determine pollutant limits appropriate for the Palo Alto RWQCP incinerator, consistent with the protocols contained in §503.43 and §503.44.

21. This Order serves as an NPDES permit, reissuance of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the

Public Resources Code (CEQA) pursuant to Section 13389 of the California Code.

22. The discharger and interested agencies and persons have been notified of the Board's intent to reissue the NPDES permit for this discharge and have been provided an opportunity to submit their written comments and appear at the public hearing.

23. The Board, at a properly noticed public meeting, heard and considered comments pertaining to the discharge.

IT IS HEREBY ORDERED, that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of waste to waters of San Francisco Bay south of the Dumbarton Bridge or tributaries is prohibited.

2. Discharge of waste not receiving initial dilution of at least 10 to 1 through a deepwater diffuser is prohibited.

3. Discharge of waste to dead-end sloughs or confined waterways is prohibited.

4. There shall be no bypass or overflow of untreated wastewater to waters of the State at the treatment plant or from the collection system under the control of the discharger.

5. The average dry weather flow shall not exceed 39 mgd, determined during any five-weekday period during the months of June through October. This flow limit includes 1 mgd of groundwater clean-up flows and 38 mgd of industrial and domestic flows. Groundwater clean-up flows should not occur during wet weather periods and should be consistent with local pretreatment limits and other requirements.

6. Discharges of water, materials, or wastes other than storm water, which are not otherwise authorized by this NPDES permit, to a storm drain system or waters of the state are prohibited.

7. Consistent with State Board Order WQ 90-5, this Order contains water quality based effluent limits and mass loading limits for metals. Therefore the discharger is granted an exception to discharge prohibitions 1 through 3.

B. **Effluent Limitations**

1. The discharge of an effluent containing constituents in excess of the following limits is prohibited:

Constituent	Unit	Monthly Average	Daily Maximum	Instant-aneous Maximum
a. BOD	mg/ℓ	10	20	-
b. Ammonia-N	mg/ℓ	3.0	8.0	-
c. Suspended Solids	mg/ℓ	10	20	-
d. Oil and Grease	mg/ℓ	5	10	-
e. Settleable Matter	mg/ℓ-hr	0.1	-	0.2
f. Turbidity	NTU	-	-	10
g. Chlorine Residual	mg/ℓ	-	-	0.0

2. The discharge shall not have pH of less than 6.5 nor greater than 8.5.

3. Effluent Toxicity

3.1 Acute Toxicity

The survival of organisms in undiluted effluent shall be an 11-sample median value of not less than 90 percent survival, and a 90 percentile value of not less than 70 percent survival. The 11-sample median and 90th percentile effluent limitations are defined as follows:

11-sample median: If five or more of the past ten or fewer samples show less than 90 percent survival, then survival of less than 90 percent on the next sample represents a violation of the effluent limit;

90th percentile: If one or more of the past ten or fewer samples show less than 70 percent survival, then survival of less than 70 percent on the next sample represents a violation of the effluent limitation.

3.2 Chronic Toxicity

All permit amendments contained in Regional Board Order No. 92-104, the Blanket Chronic Toxicity Order, are hereby included in this Order.

4. Concentration Limits for Toxic Pollutants

4.1 The effluent shall not exceed the following concentration limits:

Constituent	1-day Average ($\mu g/\ell$)†		4-day Average ($\mu g/\ell$)†		Monthly Average ($\mu g/\ell$)†	
Arsenic	3.6	(A,F)				
Cadmium			9.3	(A,C)		
Chromium (VI)*	10	(A,F)				
Copper	4.9	(C)				
Lead			5.6	(A,C)		
Mercury	2.1	(C)			0.025	(A,E)
Nickel			8.3	(A,C)		
Selenium	2.0	(A,F)				
Silver	2.3	(A,C)				
Tributyl tin					0.005	(E)
Zinc			86	(A,C)		
Chloroform					480	(E)
Halomethanes*					480	(E)
Hexachlorobenzene					0.00069	(E)
Phenol	100	(A,F)				
Aldrin					0.00014	(E)
α-BHC					0.013	(E)
β-BHC					0.046	(E)
Chlordane*	0.004	(C)			0.000081	(E)
DDT*	0.001	(C)			0.0006	(E)
Dieldrin	0.0019	(C)			0.00014	(E)
Endosulfan*	0.0087	(C)			2.0	(E)
Endrin*	0.0023	(C)			0.8	(E)
γ-BHC (Lindane)	0.16	(C)			0.062	(E)
Heptachlor	0.0036	(C)			0.00017	(E)
Heptachlor Epoxide					0.00007	(E)
PCBs*	0.03	(C)			0.00007	(E)
Toxaphene			0.0002	(C)	0.00069	(E)
Cyanide	5	(C)				
PAHs*	15	(C)			0.031	(E)
TCDD equivalents*					1.4E-08	(E)

Notes

* - Analytical definition of constituent found in Attachment 2 of this permit, "Organic Priority Pollutants Definitions"

† - Compliance determinations shall be based on available analyses for the time interval associated with the effluent limitation. When only one sample analysis is available in a specified time interval (e.g., 30-day average or 4-day average), that sample shall serve to characterize the discharge for the entire interval. For 4-day averages, compliance with the effluent limitation may be demonstrated by reporting concentrations of four 24-hour composite samples, as well as the average of the four.

A - Limit same as previous limit.

B - Limit same as fresh water quality objective / aquatic life.

C - Limit same as marine water quality objective / aquatic life.

D - Limit same as fresh water quality objective / human health.

E - Limit same as marine water quality objective / human health.

F - Limit derived from 95th percentile concentration from 1989 plant performance. The discharger will evaluate compliance with the 95th percentile limit monthly. The 95th percentile value is the highest concentration measured during a time period (two years maximum) after removing the top 5% of the results for that time period. After 5% of the measures for any toxin have exceeded the effluent limit, each additional exceedance will constitute a violation for the measurement period of that toxin (e.g., for metals measurements that are measured weekly, each exceedance after the 5% allowed will be counted as one week of violation).

4.2 Limit of Quantitation (LOQ), Method Detection Limit (MDL) and Practical Quantification Limit (PQL)

All metal effluent limits are above the associated practical quantification limit (PQL) for that metal except for mercury. Provision E.4 contains a task to determine the LOQ, MDL, and PQL for mercury and the constituents of the September 1992 Basin Plan amendment measured by the RWQCP laboratory and to request the outside laboratories to identify their MDLs and PQLs for specific constituents. According to the State Board's Enclosed Bays and Estuaries Plan (91-13 WQ), the LOQ shall serve as the PQL where a discharger develops a LOQ specific to their matrix and satisfactory to the Regional Board.

When the effluent limitation is less than the PQL, compliance determinations based on analysis of a single sample shall only be undertaken if the concentration of the constituent of concern in the sample is greater than or equal to the PQL. When the effluent limitation

is less than the PQL, and recurrent analytical responses between the PQL and the effluent limitation occur, compliance shall be determined by review of data and laboratory bench sheets to determine the method detection limit, and, where appropriate, the statistical significance of these values.

5. Mass Limits for Toxic Pollutants

5.1 Mass Limits for Copper

a. The copper wasteload allocation Basin Plan Amendment, adopted by the Board on June 16, 1993, calls for the three South Bay POTWs to reduce copper mass discharges by a minimum of 25%. The mass limit for copper in Section B.5.2 of this permit reflects this required reduction. Concurrently, a minimum of 20% reduction in storm water loadings to South Bay is required.

b. In addition to the above required reductions, the Palo Alto RWQCP, the other two South Bay POTWs, and the Santa Clara Valley Nonpoint Source Pollution Control Program are required to reduce their combined discharge of copper into South Bay by an additional 950 pounds per year, to be accomplished by 1998. This required reduction is not reflected in the copper mass limit of Section B.5.2.

5.2 The effluent mass loadings shall not exceed the following mass loading limits:

Constituent	Annual Limit (lb/yr) (1,2)
Arsenic	158
Cadmium	237
Chromium (VI)	474
Copper	720
Lead	790
Mercury	16
Nickel	948
Selenium	100
Silver	237
Zinc	5925
Cyanide	1659
Phenols	3950
PAHs	1580

Notes

(1) Metals limits based on average flow data from 1985-1988 and average concentration data from 1989, except for copper, which is based on the wasteload allocation adopted by the Board on June 16, 1993. According to the Basin Plan, after a wasteload allocation (for copper) is implemented in permits and load reductions consistent with that allocation are occurring, the Board will reevaluate the effluent concentration limitations for copper. Limits for cyanide, phenols, and PAHs are based on 1985-1988 average flow data and 1989 performance data.

(2) In calculating compliance, the discharger will count all non-detect measures at the detection level. If a mass limit violation is observed, and non-detects contribute to the violation, the discharger will improve monitoring capabilities for the specific constituent, and the violations will be evaluated with consideration of the detection limits.

Mass loading should be calculated for each analytical result (e.g., for weekly measures, calculate loadings weekly using average weekly flow data. The discharger shall submit a cumulative total of mass loadings for the previous twelve months with each Self-Monitoring Report). Compliance will be determined based on the previous twelve months of monitoring, and will be calculated weekly for weekly measures, and monthly for monthly measures. Monitoring data collected under accelerated schedules should be time-weighted when calculating the average annual loading.

For performance-based mass limits: Because mass may increase during heavy rainfall years and wet year data were not considered in the development of these limits, exceedances during wet weather years will be evaluated separately.

6. The arithmetic mean of values for BOD and suspended solids in effluent samples collected in each monthly reporting period shall not exceed 15% of the arithmetic mean of respective values for influent samples collected at approximately the same times during the same monthly period (i.e. 85% removal).

7. The effluent shall not exceed a median MPN for total coliform organisms of 23/100 ml, nor a maximum of 240/100 ml, as determined from the results of the previous consecutive five (5) days for which analyses have been completed.

C. Receiving Water Limitations:

1. The discharge of waste shall not cause the following conditions to exist in waters of the state at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter, or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the state within one foot of the water surface:

Constituent	Limit
a. Dissolved Oxygen	5.0 mg/ℓ minimum. Median of any three consecutive months shall not be less than 80% saturation. When natural factors cause lesser concentrations than those indicated above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b. Dissolved Sulfide	0.1 mg/ℓ maximum
c. pH	Variation from natural ambient pH causing unreasonable effects on beneficial uses.
d. Un-ionized Ammonia	0.025 mg/ℓ as N, annual median. 0.4 mg/ℓ as N, maximum

3. Any applicable receiving water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board, as required by the Clean Water Act or amendments thereto, including the chronic toxicity objective, shall be met within 250 feet of the point of discharge. In the case of

marine water quality objectives, the standard shall be met where the salinity is greater than or equal to 5 parts per thousand.

If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise or modify this Order in accordance with such more stringent standards.

D. Sludge Requirements

1. The discharge of sewage sludge shall not cause waste material to be in a position where it is, or can be carried from the sludge storage site and deposited in the waters of the State.

2. Sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, or result in groundwater contamination.

3. Duty to mitigate: The discharger shall take all reasonable steps to prevent or minimize any sludge use or disposal which has a likelihood of adversely affecting human health or the environment.

4. All sludge generated by the discharger must be disposed of in an incinerator, in accordance with 40 CFR Part 503. If the discharger desires to dispose of sludge by a different method, a request for permit modification must be submitted to the EPA 180 days before start-up of the alternate disposal practice. All the requirements in 40 CFR 503 are enforceable by EPA whether or not they are stated in an NPDES permit or other permit issued to the permittee.

5. The discharger shall submit an annual report to the EPA and the Regional Board containing monitoring results as specified in §503.48, postmarked February 19 of each year, for the period covering the previous calendar year.

6. The Board may amend this permit prior to expiration if changes occur in applicable state and federal sludge regulations.

E. Provisions

1. The requirements of this Order supersede the requirements of Orders 88-175, 90-034, 90-069 and 91-068. Orders 88-175, 90-034, 90-069, and 91-068 are hereby rescinded.

2. The discharger shall comply with all sections of this Order immediately upon adoption.

3. Effluent Toxicity

3.1 Acute Toxicity

Compliance with the acute toxicity limitation in effluent limitation B.3 of this Order shall be evaluated by measuring survival of three-spine stickleback exposed to undiluted effluent of 96 hours. The toxicity tests will be performed according to protocols approved by the U.S. EPA or State Board or published by the American Society for Testing and Materials (ASTM) or American Public Health Association. According to tests performed on the RWQCP effluent in February 1993, three-spine stickleback was the most sensitive species determined from concurrent screening(s) of three species: three-spine stickleback, rainbow trout and fathead minnow. This information was found to meet the requirements of the Basin Plan, and further screenings are not required. Since the discharger has documented that the acute toxicity limitation has not been exceeded using three-spine stickleback and fathead minnow during the previous three years, compliance monitoring with the one species is allowed.

3.2 Chronic Toxicity

All permit amendments contained in Regional Board Order No. 92-104, the Blanket Chronic Toxicity Order, are hereby included in this Order.

4. The discharger shall submit a technical report acceptable to the Executive Officer summarizing the results of a minimum of ten (10) effluent sample analyses for mercury and selenium (five in wet season, five in dry season), and six (6) for the constituents of the September 1992 Basin Plan amendment (three wet, three dry, with the exception of TCDD equivalents [dioxin] for which three (3) analyses shall be sufficient). The report shall include the limit of quantitation (LOQ), method detection limit (MDL) and practical quantification limit (PQL) achieved at the RWQCP laboratory and an evaluation of compliance with the effluent limitations for each constituent. For each constituent, the LOQ, MDL, and PQL should be less than the effluent limit, where technically feasible. For constituents analyzed outside of the RWQCP laboratory, MDLs and PQLs should be provided to the RWQCP by outside laboratories, and included in this technical report. If the monitoring results for a constituent document that the effluent limit cannot be attained by June 30, 1993, the discharger may petition for interim limits by July 31, 1993. The technical report shall contain recommendations for further effluent sampling and analysis, both with respect to type and frequency of analysis. This NPDES permit shall be subsequently modified to include effluent sampling for the subject constituents.

4.1	Task	Due Date
	Submit Technical Report	July 31, 1993

5. The discharger shall comply with the requirement of B.5.1.b of this permit to reduce the combined discharge of copper from the discharger, the Sunnyvale WPCP, the San Jose/Santa Clara WPCP, and the Santa Clara Valley Nonpoint Source Pollution Control Program by 950 pounds per year. The discharger shall submit a joint plan, acceptable to the Executive Officer, with the Sunnyvale WPCP, the San Jose/Santa Clara WPCP, and the Santa Clara Valley Nonpoint Source Pollution Control Program for developing a proposal to achieve compliance with B.5.1.b of this permit. The joint proposal, acceptable to the Executive Officer, should be submitted 5 months after the submittal of the plan.

5.1	Task	Due Date
	Joint Plan for developing proposal to achieve compliance with B.5.1.b	August 30, 1993

5.2	Task	Due Date
	Joint proposal to achieve compliance with B.5.1.b	January 30, 1994

6. The discharger shall comply with the attached Self-Monitoring Program. The Executive Officer may make minor amendments to it pursuant to federal regulations (40 CFR 122.63).

7. The discharger shall comply with all items in the attached "Standard Provisions, Reporting Requirements, and Definitions" dated December 1986.

8. The discharger shall review and update its Operation and Maintenance Manual annually, or in the event of significant facility or process changes, shortly after such changes occur. Annual revisions, or letters stating that no such changes are needed shall be submitted to the Board by April 15 of each year.

9. The discharger shall annually review and update its Contingency Plan. The discharge of pollutants in violation of this Order, where the discharger has failed to develop and/or implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order, pursuant to Section 13387 of the Water Code.

10. The discharger shall implement and enforce its approved pretreatment program

in accordance with Board Order 89-179 and its amendments thereafter. The discharger's responsibilities include, but are not limited to:

a. Enforcement of National Pretreatment Standards (e.g., prohibited discharges, Categorical Standards) as provided in 40 CFR 403.5 and 403.6;

b. Development and enforcement of local limits that implement the requirements of 40 CFR 403.5(c);

c. Implementation of the pretreatment program in accordance with legal authorities, policies, procedures, and financial provisions described in the General Pretreatment regulations (40 CFR 403) and its approved pretreatment program.

d. Submission of annual and quarterly reports to EPA and the State as described in Board Order 89-179, and its amendments thereafter.

11. This Order expires on July 21, 1998. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days before this expiration date as application for reissuance of waste discharge requirements.

12. This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean water Act or amendments thereto, and shall become effective 10 days after the date of its adoption provided the Regional Administrator, EPA, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

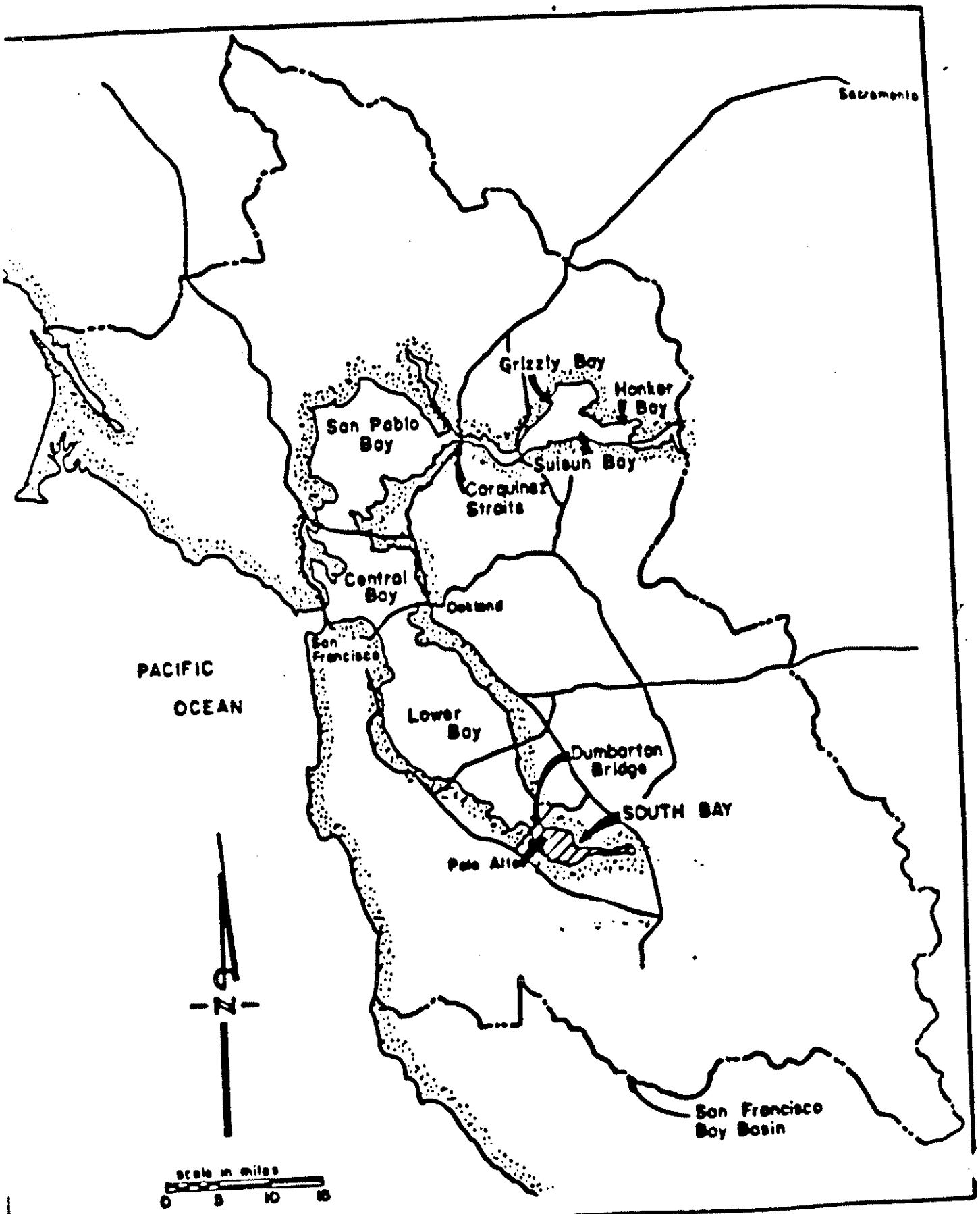
I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 21, 1993.

STEVEN R. RITCHIE
Executive Officer

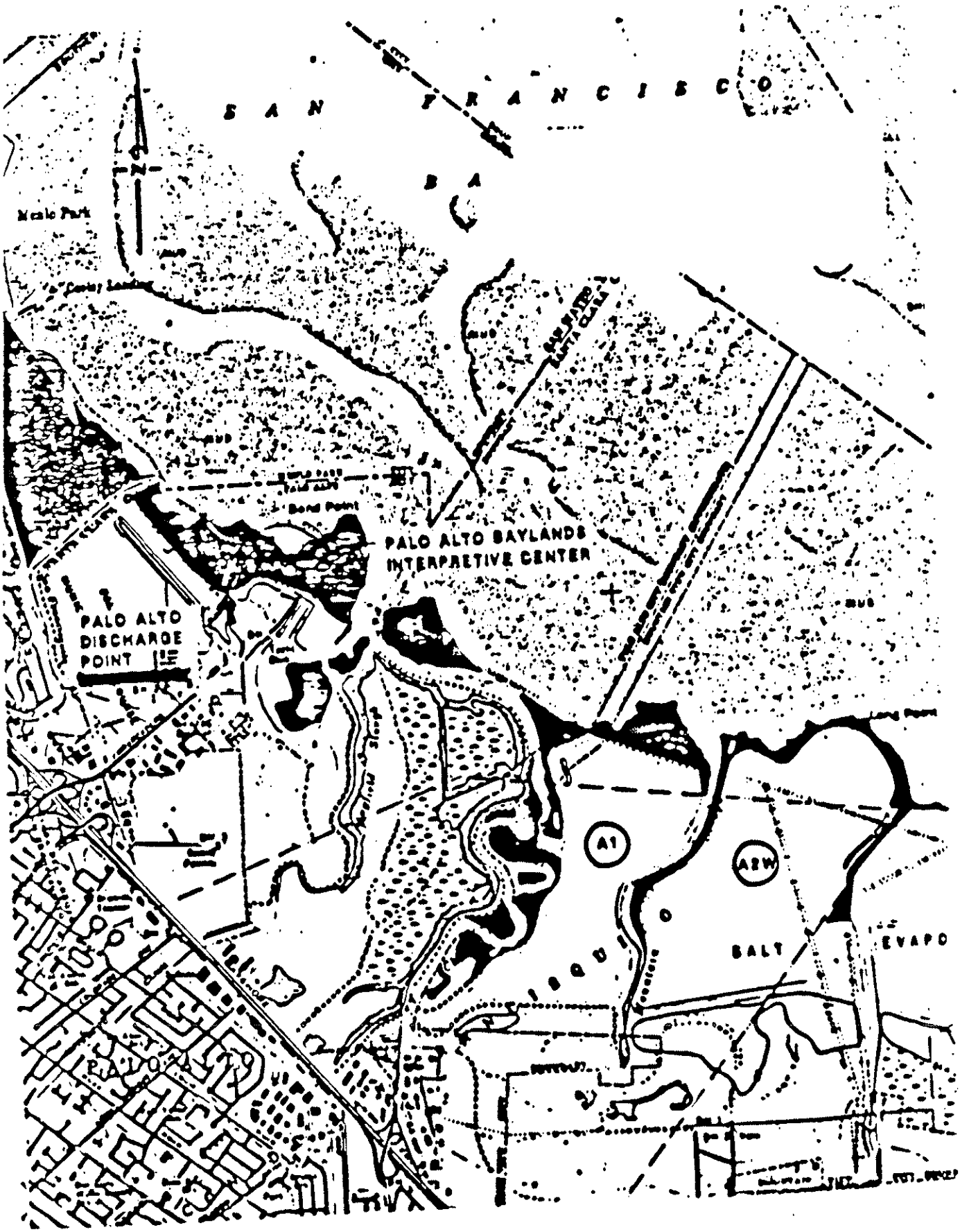
Attachments:
Location Maps
Organic and Priority Pollutants Definitions
Self-Monitoring Program
Standard Provisions, Reporting Requirements, and Definitions (dated Dec. 17, 1986)
Pretreatment Order No. 89-179
Chronic Toxicity Order No. 92-104

File No. 2189.8011

Location Map



Palo Alto WQCF Discharge Point



ORGANIC AND PRIORITY POLLUTANTS SPECIAL DEFINITIONS

(from Appendix 1 of the California Enclosed Bays and Estuaries Plan 91-13 WQ)

CHLORDANE shall mean the sum of chlordane-α, chlordane-γ, chlordene-α, chlordene-γ, nonachlor-α, nonachlor-γ, and oxychlordane.

CHROMIUM VI limit may be met by analysis for total or hexavalent chromium.

DDT shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.

ENDOSULFAN shall mean the sum of endosulfan-α, endosulfan-β, and endosulfan sulfate.

ENDRIN shall mean the sum of endrin and endrin aldehyde.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide), chloromethane (methyl chloride), chlorodibromomethane, and dichlorobromomethane.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

TCDD EQUIVALENTS shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity equivalence factors, as shown in the table below.

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDD	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8-tetra CDF	0.1
1,2,3,7,8-penta CDF	0.05
2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDFs	0.1
2,3,7,8-hepta CDFs	0.01
octa CDFs	0.001

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR
CITY OF PALO ALTO

PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT

SANTA CLARA COUNTY

NPDES NO. CA0037834

ORDER NO. 93-085

CONSISTING OF
PART A (Dated December 1986) and PART B

SELF-MONITORING PROGRAM
FOR
CITY OF PALO ALTO

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT AND INTAKE

Station	Description
A-001	At any point in the treatment facilities headworks at which all waste tributary to the system is present.

B. EFFLUENT

Station	Description
E-001	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present (May be the same as E-001-D).
E-001-D	At any point in the disinfection facilities for waste at which point adequate contact with the disinfectant is assured.

C. RECEIVING WATERS

Station	Description
C-1	Located near Sand Point, approximately 2,000 feet east of where the unnamed, man-made slough conveying the effluent flows into South San Francisco Bay.

D. LAND OBSERVATIONS

Station	Description
P-1 thru P-'n'	Located at the corners and midpoints of the perimeter fenceline surrounding the treatment facilities. (A sketch of the locations of these facilities will accompany each report)

E. OVERFLOWS AND BYPASSES

Station	Description
OV-1 thru OV-'n'	Bypasses or overflows from manholes, pump stations, or collection systems.

F. SLUDGE

The discharger shall continue to analyze sludge pursuant to the pretreatment requirements of Order 89-179.

II. SCHEDULE OF SAMPLING

The schedule of sampling and analysis shall be that given in Table 1, except for sludge. Sludge sampling shall follow the schedule and analyses specified by Order 84-60, as amended.

III. ITT MARSH MONITORING

A. DESCRIPTION OF SAMPLING STATIONS

1. INFLUENT AND EFFLUENT

Station	Description
E-1	Located at the marsh discharge point, and consisting entirely of discharge from the marsh.

2. MARSH WATERS AND SEDIMENTS

Station	Description
1-A,1-B,1-C,1-D, 1-E,2-A,2-B,2-C, 2-E,3-A	As specified in Figure A (attached)
Matadero Creek	At the point where Matadero Creek passes beneath the Bayshore Freeway

B. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given in Table 2.

IV. MODIFICATIONS TO PART A

Add to Section G.4.e:

Include in each monthly report the following:

Annual tabulations of all data collected through the year up to the reported month to date for acute toxicity, monthly flow, and influent and effluent metals and cyanide. For metals and cyanide, include influent and effluent concentration and mass data. On a monthly basis, report the minimum, maximum, 95th percentile, and average metals and cyanide concentration values for the year, through the reported month. Report most recent twelve months total mass discharged for metals and cyanide.

I, Steven R. Ritchie, Executive Officer, hereby certify that the following Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order 93-085.

2. Has been amended and ordered by the Board on 7/21/93.

3. May be revised by the Executive Officer pursuant to federal regulations (40 CFR 122.36); other revisions may be ordered by the Board.

STEVEN R. RITCHIE
Executive Officer

Attachments:
Table 1
Table 2
Figure A - ITT Marsh sampling sites
Part A (dated December 1986)

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS,
AND ANALYSIS (3,6)
City of Palo Alto

SAMPLING STATION	A-001	E-001			E-001D	S (7)	T (5)	P	OV
TYPE OF SAMPLE	C-24	G (2)	Cont.	C-24	G	G	G	G	O
Flow Rate (mgd)			D						
BOD, 5-day, 20°C (1) (mg/L & lb/day)	W			W					
Total Suspended Solids (1) (mg/L & lb/day)	W			W					
Chlorine Residual & Dosage (mg/L & lb/day) (4)		2H or Cont.							
Oil & Grease (mg/L & lb/day)		M							
Total Coliform (MPN/100 ml)					3/W				
Acute Toxicity-96 hr, Flow-through (% survival in undiluted effluent)				W					
Chronic Toxicity (11)				M					
Dissolved Oxygen (mg/L & % saturation)		D							
Dissolved Sulfides (mg/L if DO<5.0 mg/L)		D							
pH (units)		D							
Ammonia Nitrogen (mg/L & lb/day)				W					
Nitrate Nitrogen (mg/L & lb/day)				2W					
Nitrite Nitrogen (mg/L & lb/day)				2W					
Total Organic Nitrogen (mg/L & lb/day)				M					
Total Phosphate (mg/L & lb/day)				M					
Turbidity, Nephelometric (NTU)				W					

TABLE 1 (continued)
City of Palo Alto

SAMPLING STATION	A-001	E-001			L	S (7)	T (5)	P	OV
TYPE OF SAMPLE	C-24	G(2)	Cont.	C-24	G	G	G	G	O
Aluminum (mg/kg)									
Iron (mg/kg)									
Manganese (mg/kg)									
Arsenic (µg/L & lb/day)	M			M					
Cadmium (µg/L & lb/day)	M			M					
Chromium (µg/L & lb/day)	M			M					
Copper (µg/L & lb/day)	W			W					
Cyanide (µg/L & lb/day)	W			W					
Lead (µg/L & lb/day)	M			M					
Mercury (µg/L & lb/day) (9)	M			M					
Nickel (µg/L & lb/day)	W			W					
Selenium (µg/L & lb/day) (9)	M			M					
Silver (µg/L & lb/day)	W			W					
Zinc (µg/L & lb/day)	W			W					
Phenolic Compounds (µg/L & lb/day)	Q			Q					
PAHs (µg/L & lb/day) (8)	Q			Q					
All applicable Standard Observations		D						2/W	E
Organic Priority Pollutants (µg/L & lb/day) (10)	Y			Y					
Total Organic Carbon (mg/kg)									
Sediment Grain Size Analysis (% of total)									
Eh (at 5 cm depth)									

TABLE 1 (continued)
City of Palo Alto

LEGEND

TYPES OF SAMPLES

G	=	grab sample
C-24	=	composite sample (24-hour)
Cont.	=	continuous sampling
O	=	observation

TYPES OF STATIONS

A = treatment facility influent station
E = waste effluent stations
L = basin and/or pond levee stations
T = tissue sampling stations
S = receiving sediment sampling stations
P = treatment facilities perimeter stations
OV = bypasses or overflows from manholes, pump stations, or collection systems

FREQUENCY OF SAMPLING

E = each occurrence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year

2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/Y = twice per year
3/Y = three times per year
Q = quarterly, once each in Mar., June, Sept., & Dec.

2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
2M = every 2 months
Cont = continuous

NOTES FOR TABLE 1:

(1) Percent removal (effluent vs. influent) shall also be reported.

(2) Grab samples shall be taken on day(s) of composite sampling.

(3) If any effluent sample is in violation of limits, except those for metals, cyanide, and organics, sampling shall be increased for that parameter to at least daily or greater until compliance is demonstrated in two successive samples. Receiving water violations shall be reported in the monthly report; increased receiving water monitoring may be required. Compliance measurements represent compliance status for the time period between measurements.

(4) Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be taken every 30 minutes until compliance is achieved.

(5) Tissue sampling of *Macoma balthica* to be done by USGS at the Sand Point Station during low tide.

(6) All flow other than to the outfall (e.g., sludge) shall be reported monthly. Daily records shall be kept of the quantity and solids content of dewatered sludge disposed of and the location of disposal.

TABLE 1 (continued)
City of Palo Alto

LEGEND (continued)

(7) Receiving sediment monitoring to be done by USGS at the Sand Point Station during low tide.

(8) PAHs = Polynuclear Aromatic Hydrocarbons. PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, indeno[1,2,3-c,d]pyrene, phenanthrene, and pyrene. PAH analysis must be done by EPA Method 610 or 625.

(9) In addition to monthly monitoring, special sampling and analysis studies are required for mercury and selenium pursuant to Provision E.4 of the NPDES permit (ten effluent samples, consisting of five during wet season and five during dry season). Analytical monitoring methods used for the special study required by Provision E.4 must yield method detection limits for mercury and selenium that are adequate for evaluation of compliance with effluent limits in Section B.4.1 of this permit.

(10) Organic priority pollutants and other constituents of the September 16, 1992 Basin Plan amendment must be monitored on a monthly basis for six months pursuant to Provision E.4 of this permit (i.e., three months wet season and three months dry season) to determine whether any of these constituents are present in excess of their corresponding effluent limits. The frequency of sampling will revert to once per year, as indicated in Table 1, for constituents that are determined to be non-detectable, with the exception of TCDD equivalents, for which the frequency of sampling will revert to once per permit reissuance. If the six months of monitoring show that concentrations of a specific pollutant are near or above its effluent limit, the Board may require sampling frequencies greater than once per year.

(11) While the discharger is conducting its TIE/TRE study, effluent chronic toxicity monitoring will be twice per year, once during the wet season and once during the dry season. Upon completion of the TIE/TRE study, monitoring will revert to the frequency indicated in Table 1. Chronic toxicity monitoring is to be carried out on the species determined by the TIE study as the most appropriately sensitive test organism. See Order 92-104 (attached) for monitoring and reporting requirements.

After at least twelve test rounds, the discharger may request the Executive Officer to decrease the required frequency of chronic toxicity testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TU_C values specified in the effluent limitations was never observed using that test species.

TABLE 2

SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

SAMPLING STATION (FIGURE A)	1-B	2-B	E-1			Matadero Creek
TYPE OF SAMPLE	Grab	Grab	Cont.	Grab	C-24	4-Day
Flow Rate (mgd)			D			
Total Coliform (MPN/100 ml)				M		
Dissolved Oxygen (mg/L & % saturation)	W (2)	W (2)		W		
Dissolved Sulfides (mg/L if DO<5.0 mg/L)				W		
pH (units)	W (1,2)	W (1,2)		W		
Temperature (°C)	W (1,2)	W (1,2)		W		
Ammonia Nitrogen (mg/L)	W	W				
Nitrate Nitrogen (mg/L)						
Nitrite Nitrogen (mg/L)						
Total Organic Nitrogen (mg/L)						
Total Phosphate (mg/L)						
Specific Conductance				M		
Turbidity, Nephelometric (NTU)				W		

TABLE 2 (continued)
SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

SAMPLING STATION (FIGURE A)	1-B	2-B	E-1			Matadero Creek
TYPE OF SAMPLE	Grab	Grab	Cont.	Grab	C-24	4-Day
Arsenic (µg/L) (3)					2W	M
Cadmium (µg/L) (3)					2W	M
Chromium (µg/L) (3)					2W	M
Copper (µg/L) (3)					2W	M
Cyanide (µg/L) (3)					2W	M
Lead (µg/L) (3)					2W	M
Mercury (µg/L) (3)					2W	M
Nickel (µg/L) (3)					2W	M
Selenium (µg/L) (3)					2W	M
Silver (µg/L) (3)					2W	M
Zinc (µg/L) (3)					2W	M
PAHs (µg/L)					Y	
All applicable Standard Observations (4)				W		
Organic Priority Pollutants (µg/L)					2Y	

TYPES OF SAMPLES
C-24 = 24-hr. composite sample
Cont. = Continous sampling

SAMPLING FREQUENCY
D = Once each day
W = Once each week
M = Once each month
2W = every two weeks
Y = Once each year
2Y = Once every two years

Footnotes:
(1) Measures should be made in the afternoon, when pH and ammonia toxicity are at their maximum.
(2) Measures should be made within an hour of dawn, when DO values are at their lowest levels.
(3) Method detection limits for marsh samples shall be no greater than those used for effluent testing.
(4) All applicable standard observations, including rainfall.

TABLE 2 (continued)
SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

Sediment Monitoring

Transects 1 and 2 (Figure A) shall be sampled for metals and other parameters (5):

1. Prior to filling marsh.
2. One month after filling marsh.
3. Six months after filling marsh.
4. Annually thereafter.

Footnotes:

(5) Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, selenium, silver, zinc, grain size, and total organic carbon. Sediment samples shall be composited from at least three replicates at each sampling station.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR
CITY OF PALO ALTO

PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT

SANTA CLARA COUNTY

NPDES NO. CA0037834

ORDER NO. 93-085

CONSISTING OF
PART A (Dated August 1993) and PART B

SELF-MONITORING PROGRAM
FOR
CITY OF PALO ALTO

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT AND INTAKE

Station	Description
A-001	At any point in the treatment facilities headworks at which all waste tributary to the system is present.

B. EFFLUENT

Station	Description
E-001	At any point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present (May be the same as E-001-D).
E-001-D	At any point in the disinfection facilities for waste at which point adequate contact with the disinfectant is assured.

C. RECEIVING WATERS

Station	Description
C-1	Located near Sand Point, approximately 2,000 feet east of where the unnamed, man-made slough conveying the effluent flows into South San Francisco Bay.

D. LAND OBSERVATIONS

Station	Description
P-1 thru P-'n'	Located at the corners and midpoints of the perimeter fenceline surrounding the treatment facilities. (A sketch of the locations of these facilities will accompany each report)

E. OVERFLOWS AND BYPASSES

Station	Description
OV-1 thru OV-'n'	Bypasses or overflows from manholes, pump stations, or collection systems.

F. SLUDGE

The discharger shall continue to analyze sludge pursuant to the pretreatment requirements of Order 89-179.

II. SCHEDULE OF SAMPLING

The schedule of sampling and analysis shall be that given in Table 1, except for sludge. Sludge sampling shall follow the schedule and analyses specified by Order 84-60, as amended.

III. ITT MARSH MONITORING

A. DESCRIPTION OF SAMPLING STATIONS

1. INFLUENT AND EFFLUENT

Station	Description
E-1	Located at the marsh discharge point, and consisting entirely of discharge from the marsh.

2. MARSH WATERS AND SEDIMENTS

Station	Description
1-A,1-B,1-C,1-D, 1-E,2-A,2-B,2-C, 2-E,3-A	As specified in Figure A (attached)
Matadero Creek	At the point where Matadero Creek passes beneath the Bayshore Freeway

B. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given in Table 2.

IV. MODIFICATIONS TO PART A

Add to Section F.4.e:

Include in each monthly report the following:

Annual tabulations of all data collected through the year up to the reported month to date for acute toxicity, monthly flow, and influent and effluent metals and cyanide. For metals and cyanide, include influent and effluent concentration and mass data. On a monthly basis, report the minimum, maximum, 95th percentile, and average metals and cyanide concentration values for the year, through the reported month. Report most recent twelve months total mass discharged for metals and cyanide.

Receiving water data shall be summarized and reported to the Board annually. Annual reporting shall be consistent with Regional Monitoring Program reporting format and shall be coordinated with the receiving water monitoring programs of the San Jose/Santa Clara WPCP and the Sunnyvale WPCP.

I, Steven R. Ritchie, Executive Officer, hereby certify that the following Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order 93-085.

2. Has been revised and ordered by the Executive Officer on 9/15/93. This Self Monitoring Program supercedes the previous program and amends the permit adopted by the Board on July 21, 1993.

3. May be revised by the Executive Officer pursuant to federal regulations (40 CFR 122.36); other revisions may be ordered by the Board.

STEVEN R. RITCHIE
Executive Officer

Attachments:
Table 1
Table 2
Figure A - ITT Marsh sampling sites
Part A (dated August 1993)

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS (3,6)
City of Palo Alto

SAMPLING STATION	A-001	E-001			E-001D	C (5)	P	OV
TYPE OF SAMPLE	C-24	G (2)	Cont.	C-24	G	G	G	O
Flow Rate (mgd)			D					
BOD, 5-day, 20°C (1) (mg/L & lb/day)	W			W				
Total Suspended Solids (1) (mg/L & lb/day)	W			W				
Chlorine Residual & Dosage (mg/L & lb/day) (4)		2H or Cont.						
Oil & Grease (mg/L & lb/day)		M						
Total Coliform (MPN/100 ml)					3/W			
Acute Toxicity-96 hr, Flow-through (% survival in undiluted effluent)				W				
Chronic Toxicity (10)				M				
Dissolved Oxygen (mg/L & % saturation)		D						
Dissolved Sulfides (mg/L if DO<5.0 mg/L)		D						
pH (units)		D						
Ammonia Nitrogen (mg/L & lb/day)				W				
Nitrate Nitrogen (mg/L & lb/day)				2W				
Nitrite Nitrogen (mg/L & lb/day)				2W				
Total Organic Nitrogen (mg/L & lb/day)				M				
Total Phosphate (mg/L & lb/day)				M				
Turbidity, Nephelometric (NTU)				W				

TABLE 1 (continued)
City of Palo Alto

SAMPLING STATION	A-001	E-001			L	C (5)	P	OV
TYPE OF SAMPLE	C-24	G(2)	Cont.	C-24	G	G	G	O
Aluminum (mg/kg)						3/Y		
Iron (mg/kg)						3/Y		
Manganese (mg/kg)						3/Y		
Arsenic (µg/L & lb/day)	M			M				
Cadmium (µg/L & lb/day)	M			M		3/Y		
Chromium (µg/L & lb/day)	M			M		3/Y		
Copper (µg/L & lb/day)	W			W		3/Y		
Cyanide (µg/L & lb/day)	W			W		3/Y		
Lead (µg/L & lb/day)	M			M		3/Y		
Mercury (µg/L & lb/day) (8)	M			M		3/Y		
Nickel (µg/L & lb/day)	W			W		3/Y		
Selenium (µg/L & lb/day) (8)	M			M		3/Y		
Silver (µg/L & lb/day)	W			W		3/Y		
Zinc (µg/L & lb/day)	W			W		3/Y		
Phenolic Compounds (µg/L & lb/day)	Q			Q				
PAHs (µg/L & lb/day) (7)	Q			Q				
All applicable Standard Observations		D					2/W	E
Organic Priority Pollutants (µg/L & lb/day) (9)	Y			Y				
Total Organic Carbon (mg/kg)						3/Y		
Sediment Grain Size Analysis (% of total)						3/Y		
Eh (at 5 cm depth)						3/Y		

TABLE 1 (continued)
City of Palo Alto

LEGEND

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample (24-hour)
Cont. = continuous sampling
O = observation

TYPES OF STATIONS

A = treatment facility influent station
E = waste effluent stations
L = basin and/or pond levee stations
C = receiving water sampling station
P = treatment facilities perimeter stations
OV = bypasses or overflows from manholes, pump stations, or collection systems

FREQUENCY OF SAMPLING

E = each occurrence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year
2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/Y = twice per year
3/Y = three times per year
Q = quarterly, once each in Mar., June, Sept., & Dec.
2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
2M = every 2 months
Cont = continuous

NOTES FOR TABLE 1:

(1) Percent removal (effluent vs. influent) shall also be reported.

(2) Grab samples shall be taken on day(s) of composite sampling.

(3) If any effluent sample is in violation of limits, except those for metals, cyanide, and organics, sampling shall be increased for that parameter to at least daily or greater until compliance is demonstrated in two successive samples. Receiving water violations shall be reported in the monthly report; increased receiving water monitoring may be required. Compliance measurements represent compliance status for the time period between measurements.

(4) Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be taken every 30 minutes until compliance is achieved.

(5) C-1 is the tissue/sediment station in the RWQCP's receiving water monitoring program. Monitoring for metals and other specified parameters in *Macoma balthica* tissue and/or sediment must follow applicable protocols described in the Regional Monitoring Program. Monitoring efforts shall be coordinated with the U.S. Geological Survey (USGS). Although the discharger is responsible for a sampling frequency of 3/Y, the actual sampling frequency will be a minimum of 2M (or 6/Y), due to the USGS's policy of matching funds.

TABLE 1 (continued)
City of Palo Alto

LEGEND (continued)

(6) All flow other than to the outfall (e.g., sludge) shall be reported monthly. Daily records shall be kept of the quantity and solids content of dewatered sludge disposed of and the location of disposal.

(7) PAHs = Polynuclear Aromatic Hydrocarbons. PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluorene, indeno[1,2,3-c,d]pyrene, phenanthrene, and pyrene. PAH analysis must be done by EPA Method 610 or 625.

(8) In addition to monthly monitoring, special sampling and analysis studies were required for mercury and selenium pursuant to Provision E.4 of the February 1993 Tentative Order (ten effluent samples). Analytical monitoring methods used for the special study yielded method detection limits for mercury and selenium that were adequate for evaluation of compliance with effluent limits in Section B.4.1 of this permit.

(9) Organic priority pollutants and other constituents of the September 16, 1992 Basin Plan amendment were monitored on a monthly basis for six months pursuant to Provision E.4 of the February 1993 Tentative Order. The frequency of sampling will revert to once per year, as indicated in Table 1, for constituents that were determined to be non-detectable, with the exception of TCDD equivalents, for which the frequency of sampling will revert to once per permit reissuance. If the six months of monitoring showed that concentrations of a specific pollutant are near or above its effluent limit, the Board may require sampling frequencies greater than once per year.

(10) While the discharger is conducting its TIE/TRE study, effluent chronic toxicity monitoring will be twice per year, once during the wet season and once during the dry season. Upon completion of the TIE/TRE study, monitoring will revert to the frequency indicated in Table 1. Chronic toxicity monitoring is to be carried out on the species determined by the TIE study as the most appropriately sensitive test organism. See Order 92-104 (attached) for monitoring and reporting requirements.

After at least twelve test rounds, the discharger may request the Executive Officer to decrease the required frequency of chronic toxicity testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TU_C values specified in the effluent limitations was never observed using that test species.

TABLE 2

SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

SAMPLING STATION (FIGURE A)	1-B	2-B	E-1			Matadero Creek
TYPE OF SAMPLE	Grab	Grab	Cont.	Grab	C-24	4-Day
Flow Rate (mgd)			D			
Total Coliform (MPN/100 ml)				M		
Dissolved Oxygen (mg/L & % saturation)	W (2)	W (2)		W		
Dissolved Sulfides (mg/L if DO<5.0 mg/L)				W		
pH (units)	W (1,2)	W (1,2)		W		
Temperature (°C)	W (1,2)	W (1,2)		W		
Ammonia Nitrogen (mg/L)	W (1)	W (1)				
Nitrate Nitrogen (mg/L)						
Nitrite Nitrogen (mg/L)						
Total Organic Nitrogen (mg/L)						
Total Phosphate (mg/L)						
Specific Conductance				M		
Turbidity, Nephelometric (NTU)				W		

TABLE 2 (continued)
SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

SAMPLING STATION (FIGURE A)	1-B	2-B	E-1			Matadero Creek
TYPE OF SAMPLE	Grab	Grab	Cont.	Grab	C-24	4-Day
Arsenic (µg/L) (3)					2W	M
Cadmium (µg/L) (3)					2W	M
Chromium (µg/L) (3)					2W	M
Copper (µg/L) (3)					2W	M
Cyanide (µg/L) (3)					2W	M
Lead (µg/L) (3)					2W	M
Mercury (µg/L) (3)					2W	M
Nickel (µg/L) (3)					2W	M
Selenium (µg/L) (3)					2W	M
Silver (µg/L) (3)					2W	M
Zinc (µg/L) (3)					2W	M
PAHs (µg/L)					Y	
All applicable Standard Observations (4)				W		
Organic Priority Pollutants (µg/L)					2Y	

TYPES OF SAMPLES
C-24 = 24-hr. composite sample
Cont. = Continous sampling

SAMPLING FREQUENCY
D = Once each day
W = Once each week
M = Once each month
2W = every two weeks
Y = Once each year
2Y = Once every two years

Footnotes:
(1) Measures should be made in the afternoon, when pH and ammonia toxicity are at their maximum.
(2) Measures should be made within an hour of dawn, when DO values are at their lowest levels.
(3) Method detection limits for marsh samples shall be no greater than those used for effluent testing.
(4) All applicable standard observations, including rainfall.

TABLE 2 (continued)
SAMPLING SCHEDULE FOR ITT MARSH
City of Palo Alto

Sediment Monitoring

Transects 1 and 2 (Figure A) shall be sampled for metals and other parameters (5):

1. Prior to filling marsh.
2. One month after filling marsh.
3. Six months after filling marsh.
4. Annually thereafter.

Footnotes:

(5) Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, selenium, silver, zinc, grain size, and total organic carbon. Sediment samples shall be composited from at least three replicates at each sampling station.